

Units of Measure

<u>Radioactivity</u>	<u>Symbol</u>	<u>Name</u>	<u>Volume</u>	<u>Symbol</u>	<u>Name</u>
Ci	curie		cm ³	cubic centimeter	
mCi	millicurie(1E-03 Ci)		L	liter	
μ Ci	microcurie(1E-06 Ci)		mL	milliliter	
nCi	nanocurie(1E-09 Ci)		m ³	cubic meter	
pCi	picocurie(1E-12 Ci)		gal	gallon	
Bq	becquerel(27 pCi)		ft ³	cubic feet	
d/s	disintegrations per second				
<u>Dose</u>	<u>Symbol</u>	<u>Name</u>	<u>Area</u>	<u>Symbol</u>	<u>Name</u>
Sv	sievert(100 rem)		ha	hectare(10,000 m ²)	
mSv	millisievert(1E-03 Sv)				
Gy	gray(100 rad)				
mrem	millirem(1E-03 rem)				
<u>Concentration</u>	<u>Symbol</u>	<u>Name</u>	<u>Length</u>	<u>Symbol</u>	<u>Name</u>
μ Ci/mL	microcuries per milliliter		m	meter	
mL/L	milliliters per liter		km	kilometer(1E+03 m)	
μ Ci/g	microcuries per gram		cm	centimeter(1E-02 m)	
mg/L	milligrams per liter (ppm)		mm	millimeter(1E-03 m)	
mg/kg	milligrams per kilogram (ppm)		μ m	micrometer(1E-06 m)	
μ g/mL	micrograms per milliliter (ppm)				
pCi/L	picocuries per liter				
ng/L	nanograms per liter (ppt)				
μ g/L	micrograms per liter (ppb)		<u>Exposure</u>	<u>Symbol</u>	<u>Name</u>
μ g/g	micrograms per gram (ppm)			μ R	microroentgen
Bq/L	becquerels per liter			mR	milliroentgen
ppm	parts per million				
ppb	parts per billion				
ppt	parts per trillion				
<u>Mass</u>	<u>Symbol</u>	<u>Name</u>	<u>Flow Rate or Speed</u>	<u>Symbol</u>	<u>Name</u>
g	gram			mgd	million gallons per day
kg	kilogram(1E+03 g)			cfm	cubic feet per minute
mg	milligram(1E-03 g)			Lpm	liters per minute
μ g	microgram(1E-06 g)			gpd	gallons per day
ng	nanogram(1E-09 g)			m/sec	meters per second
t	metric ton(1E+06 g)				

Unit Prefixes

centi	$1/100 = 1 \times 10^{-2} = 0.01 = E-02$
milli	$1/1,000 = 1 \times 10^{-3} = 0.001 = E-03$
micro	$1/1,000,000 = 1 \times 10^{-6} = 0.000001 = E-06$
nano	$1/1,000,000,000 = 1 \times 10^{-9} = 0.000000001 = E-09$
pico	$1/1,000,000,000,000 = 1 \times 10^{-12} = 0.000000000001 = E-12$

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Scientific Notation

Scientific notation may be used to express very large or very small numbers. A number smaller than 1 is expressed with a negative exponent (e.g., 1.3×10^{-6}). To convert this number to decimal form, the decimal point is moved left by the number of places equal to the exponent. Thus, 1.3×10^{-6} becomes 0.0000013.

A number larger than 10 is expressed with a positive exponent (e.g., 1.3×10^6). To convert this number to decimal form, the decimal point is moved right by the number of places equal to the exponent. Thus, 1.3×10^6 becomes 1,300,000.

The power of 10 also is expressed as E. For example, 1.3×10^{-6} also can be written as 1.3E-06. The chart below shows equivalent exponential and decimal values.

1.0×10^2	=	1E+02	=	100
1.0×10^1	=	1E+01	=	10
1.0×10^0	=	1E+00	=	1
1.0×10^{-1}	=	1E-01	=	0.1
1.0×10^{-2}	=	1E-02	=	0.01
1.0×10^{-3}	=	1E-03	=	0.001
1.0×10^{-4}	=	1E-04	=	0.0001
1.0×10^{-5}	=	1E-05	=	0.00001
1.0×10^{-6}	=	1E-06	=	0.000001
1.0×10^{-7}	=	1E-07	=	0.0000001
1.0×10^{-8}	=	1E-08	=	0.00000001

Conversion Chart

Both traditional radiological units (curie, roentgen, rad, rem) and the Systeme Internationale (S.I.) units (becquerel, gray, sievert) are used in this report. Nonradiological measurements are presented in both English and metric units. Frequently-used radioactivity and dose conversions are bolded.

1 centimeter (cm)	=	0.3937 inches (in)
1 meter (m)	=	39.37 inches (in) = 3.28 feet (ft)
1 kilometer (km)	=	0.62 miles (mi)
1 milliliter (mL)	=	0.0338 ounces (oz)
	=	0.061 cubic inches (in^3)
	=	1 cubic centimeter (cm^3)
1 liter (L)	=	1.057 quarts (qt)
	=	61.02 cubic inches (in^3)
1 gram (g)	=	0.0353 ounces (oz)
	=	0.0022 pounds (lbs)
1 kilogram (kg)	=	2.2 pounds (lbs)
1 curie (Ci)	=	3.7E+10 disintegrations per second (d/s)
1 becquerel (Bq)	=	1 disintegration per second (d/s)
	=	27 picocuries (pCi)
1 roentgen (R)	=	2.58E-04 coulombs per kilogram of air (C/kg)
1 rad	=	0.01 gray (Gy)
1 rem	=	0.01 sievert (Sv)
1 millirem (mrem)	=	0.001 rem
1 sievert (Sv)	=	100 rem